BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

COLUMBIA, SOUTH CAROLINA

PROCEEDING #18-11723 MAY 2, 2018 10:32 A.M.

ALLOWABLE EX PARTE BRIEFING - ND-2018-13-E

Duke Energy Carolinas, LLC, and Duke Energy Progress, LLC - Request for an Allowable Ex Parte Briefing Regarding Workforce Development Issues in South Carolina

TRANSCRIPT OF ALLOWABLE PROCEEDINGS **EX PARTE BRIEFING**

COMMISSION MEMBERS PRESENT: Swain E. WHITFIELD, CHAIRMAN; Comer H. 'Randy' RANDALL, VICE CHAIRMAN; and COMMISSIONERS John E. 'Butch' HOWARD, Elizabeth B. 'Lib' FLEMING, Robert T. 'Bob' BOCKMAN, and G. O'Neal HAMILTON

ADVISOR TO COMMISSION: David W. Stark, III, Esq.
Legal Advisory Staff

STAFF: Jocelyn G. Boyd, Esq., Chief Clerk/Administrator; F. David Butler, Esq., Senior Counsel; Douglas K. Pratt, Thomas Ellison, and John Powers, Technical Advisory Staff; Jo Elizabeth M. Wheat, CVR-CM/M-GNSC, Court Reporter; and Afton Ellison, Deborah Easterling, and Calvin Woods, Hearing Room Assistants

APPEARANCES:

HEATHER SHIRLEY SMITH, ESQUIRE, together with ***Bobby Simpson*** [Duke Energy], ***Dr. Joseph Von Nessen*** [University of South Carolina], ***Rick Jiran*** [Duke Energy], and ***Chris Hage*** [Duke Energy], representing and presenting for **DUKE ENERGY CAROLINAS, LLC, AND DUKE ENERGY PROGRESS, LLC**

ANDREW M. BATEMAN, ESQUIRE, representing the **SOUTH CAROLINA OFFICE OF REGULATORY STAFF**

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Note: For identification of any additional referenced materials and/or links for same, please see Certification correspondence filed by the Office of Regulatory Staff.

Please note the following inclusions/attachments to the record:

- PowerPoint Presentation Slides (PDF)
- *Report of the Task Force on Military Workforce Development: A 10-Step Guide* released in April 2018 by the National Association of Regulatory Utility Commissioners

P R O C E E D I N G S

CHAIRMAN WHITFIELD: Please be seated. I'll call this allowable ex parte to order, and ask our attorney, Mr. Stark, to read the docket.

MR. STARK: Thank you, Mr. Chairman.

Commissioners, we're here pursuant to a Notice of Request for Allowable Ex Parte Communication Briefing which has been filed under ND-2018-13-E. The parties requesting the briefing are Duke Energy Carolinas, LLC, and Duke Energy Progress, LLC. It is scheduled for today, here in the Commission's hearing room, May 2nd, 2018, at 10:30 a.m. And the subject matter to be discussed today is: Workforce Development Issues in South Carolina.

Thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Mr. Stark.

As many of you know, we have guidelines governing allowable ex parte briefings, so I'm going to turn it over to Mr. Andrew Bateman of the South Carolina Office of Regulatory Staff, to give us our guidelines and ground rules for the day. Mr. Bateman?

MR. BATEMAN: Good morning, Mr. Chairman and members of the Commission.

As you just mentioned, my name is Andrew

Bateman and I'm a staff attorney for the South Carolina Office of Regulatory Staff. I've been selected as the designee to certify that today's allowable ex parte briefing takes place in accordance with South Carolina Code Section 58-3-260(C)(6). That statute sets forth certain parameters and rules under which this briefing must take place and, if you will indulge me, I'm going to go over a few of those rules.

Duke Energy Carolinas and Duke Energy Progress requested this allowable ex parte communication pursuant to South Carolina Code Section 58-3-260(C). This presentation is limited solely to the information noticed by the companies, which was: Workforce Development Issues in South Carolina. I, therefore, ask that everyone here please refrain from discussing any matters not related to what was noticed.

Secondly, the statute prohibits any participants, Commissioners, or Commission Staff from requesting or giving any commitment, predetermination, or prediction regarding any action by any Commissioner as to any ultimate or penultimate issue which either is or is likely to come before the Commission.

Next, if I've counted my days correctly, a transcript of today's proceeding will be posted on the Commission's website by the end of the day next Tuesday. Any document referenced or utilized today should be included with that posting.

Fourth, I'd ask the participants, Commissioners, and Staff refrain from referencing any reports, articles, statutes, or documents of any kind that are not included in today's presentation, to prevent the need of trying to track down copies or links to these documents to include in the record. I would also note that none of the information contained in the presentation appears to have been marked or requested to be granted confidentiality, and I ask that the presenters refrain from referencing or discussing any confidential materials. This is a public briefing, and I ask that everyone please be understanding if the presenters decline to provide such information to questions here today.

As a final note, please make sure to read, sign, and return the form which you were given at the door when you came in today. This form needs to be signed by each attendee to certify that the requirements contained in South Carolina Code

Annotated Section 58-3-260(C) have been complied with at the presentation today.

Thank you for your time, Mr. Chairman, and this concludes my opening remarks.

CHAIRMAN WHITFIELD: Thank you, Mr. Bateman.

At this time, I'll now call on counsel for the party requesting the allowable ex parte. Ms. Smith?

MS. SMITH: Good morning, Mr. Commissioner and members of the Commission. I'm Heather Shirley Smith and I'm corporate counsel for Duke Energy Progress and Duke Energy Carolinas. And we're pleased to be before you to discuss a topic that is very important to us, our customers, and the State, and that's workforce development.

I'll go ahead and introduce our panel at this time, and then they'll give you a little bit more context around their roles and responsibilities as they move through the presentation.

First, you'll hear from Bobby Simpson. He's our Director of Grid Improvement Plan Integration. Then you'll hear from Dr. Von Nessen; he's with the University of South Carolina and is a research economist. You'll also hear from Rick Jiran, who is with Duke Energy; he's our Vice President of

Community Relations for South Carolina. And, finally, you'll hear from Chris Hage, who is with Duke, and he's our Director of Workforce Planning and Development.

We really appreciate the fact that the Commission has allowed us to present four speakers at one time, and we're very conscious of the challenges that this may produce. Our speakers have all committed to not speak over one another or, certainly, you, but to measure their comments and to speak slowly and articulately so that the court reporter can capture everything that is said here today for the record.

And with that, I'll turn it over to our panel.

MR. BOBBY SIMPSON [DUKE]: Good morning.

[Reference: Presentation Slide 1-2]

My name is Bobby Simpson, and thank you for taking the time to meet with us. I appreciate the opportunity to be here, because it brings me to the place I was born and raised: Columbia. So I have to say that.

My career at Duke Energy has been in the area of operations and engineering of the grid, and my role today is to make sure that we have an executable plan to build a better energy grid. And

by that, I mean a grid that is fit for the future. We refer to it as a smart-thinking grid, which I'm going to talk about here in a minute. It's a grid improvement plan that we refer to as Power/Forward Carolinas. So at Duke Energy we are determined to make sure that we meet the energy needs of our customers today, and into the future, by making smart, strategic investments in the energy grid –

[Reference: Presentation Slide 3]

– and to make sure the power that we're delivering is reliable, secure, and that it is energy that customers can count on, no matter where you live or when you need us.

So we believe a smart-thinking energy grid is one that provides high-quality, reliable electric service, and it's really essential for the communities we serve because it helps attract new business and industry, it supports the growth of new technologies and cleaner energy, it drives economic growth and new jobs, and then it powers the lives of customers. It gives the people the energy they need to work, play, and live the way they want to.

So, building that cleaner, better energy future, it also requires a highly skilled workforce

to transform the grid, because that's what this is about, and it requires a statewide workforce, and it's one that has to be diversified with many skill sets and versed in the language of data. Because it's really data — I'll talk about that more in a minute — it's really data that's enabling us to make smart, strategic investments that benefit our customers the most.

And while the technology is changing and the way we work is evolving, we have to continue to focus on what really matters the most, and that's the people, because our employees are the front line serving our customers, and our goal is to make sure we recruit the best people and make sure they're well-trained and that they're highly skilled, so we can exceed customer expectations and serve them better every day.

So the Power/Forward Carolinas grid improvement initiative is one way that we're transforming the way we do business, and it's most definitely a people-driven transformation, because it will support thousands of new jobs in the communities all across the State and it will help support families, boost the economy as we improve the reliability of the grid, and then build that

electric infrastructure that's smart, secure, and flexible to respond to the changing needs of customers, communities, and the State.

[Reference: Presentation Slide 4]

So, you know, we all know that technology is transforming South Carolina. It's changing the way customers use electricity, the way they interact with their electric provider. In fact, it's really hard to find a key social structure that's not dependent upon electricity. And our customers' needs have changed and grown beyond what today's grid was designed to do, and I'll talk about that, because customers today want a new experience. They want a better experience. They want one that's built upon information and how they personally use energy, and tools to harness that energy and power their lives. So from routine day-to-day activities, all the way to powering high-tech manufacturing, the electric power grid is really the backbone of the State's digital economy. So our customers, they deserve a grid that's reliable, one that's built to weather storms, and one that's ready to support the growth of renewable energy resources and other emerging technology.

So to make all of this happen, we have to

think about three or four things. First and foremost is the reliability of the grid. We have to make sure that all customers receive the same high quality of service and we have to address and reduce disruptions in the service that we provide. And we have to be ready for the severe weather before it strikes and reduce the impact that storms are having as they worsen in frequency and intensity. Number two, we have to be vigilant and prepare now for the very real threat of cyber- and physical attacks. Number three, we have to respond to growing consumer expectations for more interaction with their electric company. And, finally, as renewable energy technologies like solar, battery storage, microgrids, electric vehicles, as they become more affordable and accessible, the growth of these technologies — while they're really important for our energy future — they have a really profound impact on the way the grid works. So we need to take steps now to support this growth.

And to make all of this happen, we have to have the right skill sets at the scale that's necessary to bring about this important transformation. So that means recruiting. It's

recruiting thousands of new contractors and employees, it's expanding our training for our existing workforce, and it's thinking ahead to the future needs as we move through this decade-long initiative.

[Reference: Presentation Slide 5]

So I want to move now and talk a little bit about what's in Power/Forward, because what's in it is what we refer to as a diverse portfolio of programs that work together, and they require a diverse range of skills. So it's everything from heavy lifting, construction, all the way to what we call instrumentation-and-control technicians that know how to interpret and use data. And it's really the breadth and depth of the knowledge and skills that lineworkers have to possess today. And really, when you look ahead over the next 10 years, it is really wide and deep in terms of the skills they need, because Power/Forward, if you think about a 10-year transformation plan, it's built around a number of core areas that require a variety of skill sets. It requires a diverse workforce that's trained to make sure we bring the benefits to customers when we do the work.

So, I'm going to talk about four things that

are in Power/Forward to give you a feel for the type of work we're talking about and the skills required. Number one, we refer to it as targeted undergrounding. So our targeted undergrounding program, it'll improve storm response and reliability by using smart data to strategically identify the most outage-prone overhead power lines and move those lines underground. So the innovative use of data is what enables us to identify where these persistent outages are, and, in the end, it'll eliminate 30 percent of all outage events.

So, I want to repeat that, because that's really important from a performance standpoint. So the targeted underground program will eliminate, when you look at it at a distribution grid system level, 30 percent of all the outage events. That's a big deal and it's very impactful in terms of customer benefits.

So undergrounding these pockets of poor performance, it'll reduce costs, it'll quicken restoration times after the major storms for all customers, and it also eliminates and reduces the frequency of tree and vegetation work that's needed for these really hard-to-access overhead lines. So

we're piloting this work right now across the State and it'll expand throughout the year.

The second program I'll mention we refer to as hardening programs. So these are programs that I think of in terms of stopping outages from happening in the first place. So there are specific investments that do that, so we're taking steps, and that means strengthening the grid, protecting against severe weather and other disruptions. So that means upgrading power lines and connection points. You can think of it as targeted hardening, raising substations and other equipment in flood-prone areas, installing equipment that can monitor the health of key components on the grid, and then strengthening the grid against cyber- and physical attacks. And as an electric utility and owner of critical infrastructure, I mean, we're absolutely a top target for cyberthreats and -attacks. And we hear stories — all of us hear stories regularly — in the news about disruptive impacts of cyberattacks around the globe.

So we're taking steps today to make sure that we can help customers avoid these costly and disruptive outages, and that we'll be ready when a

storm strikes, no matter where the storm comes from.

The third program I'll mention in Power/Forward we refer to as resiliency programs. So these are programs that reduce the impact of outages when they do happen, and so reduce that customer impact. And the one I want to highlight under resiliency is what we call the smart-thinking grid. So what that means is we'll have fewer outages and faster restorations for customers, thanks to an intelligent network that anticipates outages and instantly reroutes service to keep power on for customers. So it builds upon self-healing technologies that we've already implemented, and you can think of it as an automated, self-optimizing grid that'll make real-time decisions, that'll isolate outages, and it reduces the impact on customers by as much as 75 percent. And when completed, around 80 percent of the Duke Energy customers will be served by a smart-thinking grid.

So here's a way to think about it. So, if you can imagine a time where, when a car hits a pole or a tree falls on the line or a piece of equipment fails, instead of several thousand customers being

out for the duration until it gets repaired, with the smart-thinking grid there will be switches that are automated, intelligent, they segment the line, they can talk to each other. So when a car hits a pole, the switch will say, "I saw that. Did you see that?" They talk to each other, and they isolate, open and close, as needed. So what you have left is a few hundred customers out that have to be out until you fix it. Everybody else is restored almost automatically. That should give you a feel for how it works.

The other thing about it is it also gives a foundation for what we refer to as two-way power flow that's needed to support rooftop solar, battery storage, and microgrids. And these are technologies that we know are going to increasingly power the lives of customers.

So this is really an example of what I said a minute ago: Customers' needs have changed beyond what today's grid was designed to do. So today's grid is one that was designed for one-way power flow to distribute power from generation to the meter, but in today's world it's two-way power flow because of the presence of renewables on the grid. So we need to do things that enable it, and putting

investment in the smart-thinking grid addresses both reliability and the two-way power-flow needs.

The last thing I'll mention that's within Power/Forward is smart meters. So to better serve customers, our smart meter program, it'll give customers more information than they've ever had before and it'll allow for more control and in terms of how they use energy. So they'll have the ability to monitor their energy-usage behavior, they'll be empowered to make even smarter energy-saving choices to save money. And that just really opens the door to a more personalized customer experience and provides new programs and options for more value and control. So we're currently deploying the smart meters in the Duke Energy Carolina service area, now, and will be doing that in the Duke Energy Progress area later this year.

So Power/Forward, I mentioned, is a diverse portfolio of programs that work together, and so with each new measure that's installed, the grid will become more resilient, more reliable, more intelligent, and so you can think of it like I think of it, as pieces of a puzzle, and you start putting that together and you have a new picture of what energy can look like in South Carolina. And

when completed, the reliability improvement benefits, it'll improve our reliability performance by 40 to 60 percent, in terms of the number of outages that happen and the length of those outages.

And then there's some benefits I describe as intuitive. So, you have the two-way communication between company and the customer's meter, and then you have the two-way power flow, as examples. And then some benefits, I call invisible, but they're there anyway. And these are the outages or the cyberattacks that never happened, that may or would have if we had not made the investment.

So Power/Forward is about making smart choices now, to make the State's energy grid more reliable, more secure, and ready for the energy opportunities that lie ahead. And we'll use advanced data to strategically target the investments, to maximize the benefits, and keep the costs reasonable. And so with each improvement, we can improve the overall reliability of the grid and enhance the service for the customer, regardless of the type of customer and where they're located. So the time, we believe, is now to make these investments and to build a smarter energy future for all of us.

So I hope this gives you a feel for what's in it and what it will take to do it.

[Reference: Presentation Slide 6]

And the primary focus of Power/Forward is improving the customer experience, transforming the way we deliver reliable, secure, and cleaner energy to customers, but it will also have a positive impact on jobs and the economy, which is what we want to focus on today, because it'll support an average of nearly 3300 new jobs that will be created for the State, which will expand to around 5400 during the project's peak year. And that equates to almost $200 million in new salaries and wages, on average, during each year of the project, with nearly $315 million being generated during the peak construction years.

So a more reliable, intelligent electric grid is essential for keeping South Carolina competitive for new business and industry, and for helping the State's economy grow.

So I'd now like to introduce Dr. Joseph Von Nessen, who will tell you more about the importance of workforce development for Power/Forward Carolinas, as well as the State, and the challenges that come along with it.

[Reference: Presentation Slide 7]

DR. JOSEPH VON NESSEN [USC]: Good morning.

As Mr. Simpson has said, we've heard about the importance of workforce development to Duke Energy and to the Power/Forward initiative, in particular, but I want to spend the next couple of minutes talking with you about the importance of this workforce problem that South Carolina faces, as a whole.

So, the labor shortage that we have in South Carolina and the need for proactive workforce development is not only true for Duke Energy and for the Power/Forward initiative, it's not a problem that's isolated to the utilities industry; this is something that transcends across South Carolina. And I just want to spend a few minutes talking about the how and the why. How did we get here, and what does that look like and what are the implications going forward if proactive measures aren't taken over the next several years.

[Reference: Presentation Slide 8]

So starting out, I think a helpful way to think about this, first, is to look at what our economy has been doing in South Carolina and at the U.S. level over the past several years. This

economic expansion that we are in today in 2018 is now in its ninth year; it's now the second longest economic expansion on record, going back to World War II. You can get a sense here in this slide of putting this particular economic expansion in perspective with others, going back to World War II.

And why is this important? It's important because we've seen slow and steady growth over this nine-year period, which has positives and negatives associated with it, but one of the implications of slow and steady growth over a nine-year period is that we've had steady employment gains throughout South Carolina. There's been more demand, more people hired, more people coming back into the labor force. And that's put a steady downward pressure on the unemployment rate, over time.

[Reference: Presentation Slide 9]

And, currently, in South Carolina, unemployment is now at 4.4 percent. It's at 4.1 percent for the U.S., overall. And you can see the steady decline here from the peak in South Carolina of around 12 percent unemployment in the aftermath of the Great Recession. And so this steady employment growth over time, putting downward

pressure on the unemployment rate itself, has led to a tightening of the labor market – what we call a tightening of the labor market – meaning that more people are working, and that is while good news from the perspective of workers, it also means that, from the perspective of employers, they are having more trouble finding the workers that they need, and so that has begun to put upward pressure on wages in South Carolina. So that is a direct implication of what we've seen in the last several years.

[Reference: Presentation Slide 10]

So one of the questions we can ask, then, is, now that we're at 4.4 percent unemployment, what is the specific evidence that we see that we are at what economists call full employment, this idea that, for the most part, workers who are looking for jobs are able to find them, or at the very least the lack of employment is not due to a lack of jobs' availability. So is that actually what we're seeing in South Carolina? Is there evidence for that?

[Reference: Presentation Slide 11]

And we can examine two major causes of unemployment in South Carolina and at the U.S.

level to get a sense — to be able to answer this question, to get a sense of what this looks like.

One of the major causes of unemployment, of course, is the lack of job availability. And this is what we typically think about when we hear about high unemployment, particularly during a recession period. So, people want to be working but there just — there are no jobs out there. So lack of job availability is generally a problem. The other major cause is this idea of transitional unemployment, and this is why the unemployment rate is never zero, no matter how good the economy is doing at any particular moment. So there's always going to be some people unemployed, due to transition from one position to another: Maybe they're moving from one job to another, moving from one state to another, maybe they were fired. So there are all sorts of reasons why people change jobs, and that transitional unemployment is just part of any economic environment. And, again, it's why the unemployment rate is never zero, even during very healthy economic times.

So one question we can ask, based on these two causes, is, are we in a situation where lack of job availability is a problem? And what's the evidence

for the conclusion? And the answer is, no, this is not a problem that we're facing in South Carolina right now.

[Reference: Presentation Slide 12]

There's direct evidence for it, when we look at the job-openings rate. This graph looks at the job-openings rate at the national level and in the Southeast, and we can see that it's at its highest point going all the way back to 2001, so at a 17-year high. And the job-openings rate, all that represents is the number of jobs that are currently available and unfilled. So, again, at its highest point in about 17 years. So, job availability is not an issue, currently, in the United States. And if we look at the implications in South Carolina, as I mentioned before, a tight labor market, one consequence of that is a steady rise in wage growth.

[Reference: Presentation Slide 13]

And we have seen that, especially since 2015. I like to call 2015 the tipping point of this economic expansion, meaning that we had seen by that point enough steady employment gains over time that it began to put upward pressure on wages, because employers were beginning to have trouble

finding the workers that they needed. And so this graph here looks at the average hourly earnings, the growth rate in South Carolina, and you can see that the trend is very different if we compare before and after 2015. So, again, very direct evidence here.

[Reference: Presentation Slide 14]

The other piece of unemployment that's important to consider is a third major cause, what we call structural unemployment or skills-gap unemployment. And this idea simply is that there are other reasons why workers may not be able to find jobs, and it's not so much that jobs aren't available, but there are no jobs available that workers qualify for. And so when that's a reality, we call that structural unemployment or the skills-gap-related unemployment.

[Reference: Presentation Slide 15]

And this is a problem in South Carolina. We do a lot of firm-level interviews and survey work, and we find this is the number one concern across employers in South Carolina, overwhelmingly, is not being able to find the qualified workers that they need. But this transcends South Carolina. If we look at data from the Federal Reserve, I have a few

quotes here that you can read through, but the bottom line here is that across the country the Federal Reserve in their different districts are finding that there is an existence of major labor shortages and, in fact, it looks like it's actually constraining growth. That is to say, firms see the demand for and in their different industries, and they're trying to respond productively to that, but these workforce shortages are creating a constraint on growth. They're not able to expand in ways that they need to, in order to be able to capitalize on the demand that they're seeing in their local markets.

Now is that having an effect directly here in South Carolina? The answer is, absolutely, yes. And how would we observe that? Well, one direct piece of evidence is to look at employment growth in South Carolina.

[Reference: Presentation Slide 16]

This graph tracks it back to 2012, but I draw your attention to the trend since 2015 and how it's been very different. Again, 2015 being that tipping point where we began to see the labor market tighten up, wage growth begin to go up, that shortage begins to emerge. And as a result, one

consequence is that, even though employment growth continues to be positive in our State, it's begun to tick downwards, as you can see, from a peak of about 3 percent in 2015, down to approximately 1.5 percent where we stand as of March 2018, which is the latest data that we currently have available.

[Reference: Presentation Slide 17]

And this is statewide, too. There are certainly areas in South Carolina that are more affected than others; it's not uniformly distributed. But, typically, when we have a strong economy, areas where there is still — where there is persistent high unemployment, that tends to be the result of this structural unemployment, the skills-gap-related unemployment.

So here's a map of South Carolina. Again, I don't want to go into the details now, but you can see the counties where there is fairly high unemployment, currently, in South Carolina, as of 2018. And this is where we are seeing more concentrations of a skills shortage. So this is where much of this unemployment is coming from, in South Carolina, again, when we look at the individual regions.

[Reference: Presentation Slide 18]

So, I just want to spend a couple of final moments with you talking about what the implications are, going forward. Why is this important to take proactive steps to address? And one way to think about this is to consider the effects not only on companies in South Carolina – Duke Energy being one example of that, and the Power/Forward initiative – but also the implications for attracting companies to South Carolina from outside the State.

And a good example of this, I think, is the Volvo announcement down in Charleston. This is a quote from 2015, when they were just announcing that they were coming into South Carolina. They publicly stated that one of the major reasons they are here is because of a well-trained labor force, but if we fast-forward three years to 2018, just a couple of weeks ago it was announced that fewer than 4 percent of applicants are meeting the basic requirements for the jobs that they need. So this is a recent problem that has emerged in the last several years. And, again, I refer back to 2015 as that tipping point. So we've come a long way. Things have changed since 2015 to where we're seeing these statements from companies coming into

South Carolina.

So this is just one example of the importance of addressing workforce needs proactively, because it will affect the incentives of companies to come into South Carolina, given that this is a major reason why they're here today and why they've been coming throughout this expansion, going back to 2009.

[Reference: Presentation Slide 19]

So, then, just finally, circling back to Duke Energy, we've heard about the economic impacts generally, so a lot of positive implications will result coming from Power/Forward over the next decade. But in order for this to be successful, it must be accompanied by a proactive effort to train and to recruit workers in South Carolina, and I'm now going to turn it over to Rick Jiran, who's going to talk a bit more about the ongoing efforts that Duke Energy is engaged in to help solve this workforce shortage in South Carolina that has emerged, especially in the last couple of years. Thank you.

[Reference: Presentation Slide 20]

MR. RICK JIRAN [DUKE]: Good morning.

So where are we going to find our workers of

tomorrow? Will there be opportunities? And will workers be ready when those opportunities arise? And this is not just for Duke Energy, but business and industry as a whole.

When I think of workforce development, I also think of economic development, as the two do go hand-in-hand. At Duke Energy, economic development has been and will continue to be a priority in South Carolina. We work side-by-side with our local and State economic development partners, all of us focused on bringing good-paying, quality jobs to the Palmetto State.

[Reference: Presentation Slide 21]

How successful have we been? Since 2005, we have been directly involved in bringing $12.7 billion in capital investment, resulting in over 32,500 jobs in South Carolina. Last year alone, we brought more than $1.7 billion in capital investment and more than 2600 jobs. These are numbers we are extremely proud of. We are working hard, putting citizens of South Carolina, many of whom are our customers, to work.

Economic development drives workforce development. We see this in two common questions we know we are going to get from companies that are

relocating or expanding: Where are my workers? And will they be ready when we start hiring?

Thus, the need for workforce development.

[Reference: Presentation Slide 22]

So one of the ways we address this and those questions is through funding. We began our funding journey with a group called AdvanceSC established in 2004. Funded by a percentage of our off-system sales, you can see we have given millions toward education, mostly for technical and four-year colleges to update equipment and programming, and for county economic development managers needing to make infrastructure improvements.

[Reference: Presentation Slide 23]

When it comes to workforce development, we also look to the Duke Energy Foundation to assist with funding. Our Foundation is fully funded by our shareholders, not our customers. We have specific areas of focus, which include nonprofit organizations, environmental, community involvement, and the one I want to talk about today: education programs.

Supporting reading proficiency, literacy, and science, technology, engineering, and math – STEM – programs we believe lays the foundation for student

success and helps bridge the achievement gap in lower-income areas. We then use Foundation funding to help those students be successful in a certificate or two-year program at one of our outstanding technical or community colleges, or at one of our great four-year schools. And we not only work with traditional students, we work with adults looking to better themselves as well. In the last five years, South Carolinians have benefited from more than $1 million that we have invested in their success.

You can see on the slide that we have been very active in funding workforce development programs throughout our service territory in South Carolina, and we are very proud to say that we have helped thousands of South Carolinians with our funding.

[Reference: Presentation Slide 24]

Please allow me just to take a minute to highlight a couple of success stories so you can get an idea of the type of opportunities that we're looking for when we look at funding.

We are strong advocates of the technical college system in South Carolina. Local manufacturers came to Florence-Darlington Technical

College expressing a need for welders, a very high-paying career. Our $70,000 allowed the college to step up and offer scholarships to lower-income students looking to better themselves. And at Greenville Technical College, a need for entry-level machinist jobs gave us the opportunity to help underemployed individuals get their certificate in the college's 80 to Work program.

Now, regarding utility-specific funding, we granted $20,000 to York Technical College for scholarships to their linemen's program in an effort to help defer the cost of tuition for students wishing to pursue a career in the utility industry. And in an effort to encourage minority candidates to apply for jobs in the utility industry, we also focused $45,000 in funding to the Urban League to teach prep courses for the Construction and Skills Trades – or CAST – exam, which is a very difficult test that is required in order to work in the industry.

[Reference: Presentation Slide 25]

And as you can see, we are investing up to $1 million with our technical college partners to address gaps in the workforce, specifically certified lineworkers. Our investment will focus

on the talent pipeline, specifically the need to assist with existing lineworker programs or help create new ones, if need be.

[Reference: Presentation Slide 26]

But beyond money, our employees are dedicated when it comes to success of our great State. I've included some of the schools and organizations we partner with in a variety of ways. I am personally proud to chair the Catawba Area Regional Advisory Board, whose mission is to connect the business and education communities to ensure all are focused on industry needs. This board is run by the State Department of Commerce. And this is just one of the boards I sit on, representing Duke Energy and the community that I call home. And it's from this participation that I believe we should and can fill the jobs this industry needs with our own citizens. It's part of our service to our customers and our State. The two go hand-in-hand.

And now Chris Hage will tell you more about how we are working to develop the workforce so necessary to our State and industry.

Chris?

[Reference: Presentation Slide 27]

MR. CHRIS HAGE [DUKE]: Thank you, Rick.

And thank you for the opportunity to share the exciting work we're doing at Duke Energy in workforce development.

You've heard a lot already about the tight labor market, the declining employment growth in South Carolina, but also about new job opportunities, including those for Duke Energy and others in our industry. And I am excited to let you know that we're working hard to strengthen and create new workforce pipelines in a way that we really haven't done before as an industry. But before I jump into the specifics about South Carolina, I want to share a little bit about what's happening across the country.

[Reference: Presentation Slide 28]

So the Center for Energy Workforce Development, which is a national organization focusing on the workforce needs of the electric utility industry, has identified several factors that are currently having the biggest impact on our workforce. The two most prominent are infrastructure modernization and the aging workforce. These two factors are really causing the industry to replace workers at a higher rate and add new workers just to get the work done.

In particular, there's a significant need to hire more lineworkers, as you've heard, in just about every state in the country. So, nationally, CEWD is projecting that the industry will fill about 18,000 lineworker jobs by 2025. That is a significant number. Because of that high hiring demand, I'll focus most of my presentation on that role.

[Reference: Presentation Slide 29]

So, what does this mean for South Carolina? So, in South Carolina, Duke Energy, along with our partners, we're projecting that we will hire roughly 2500 lineworkers by 2023, and that's about 500 per year. And we expect that number to remain steady for the foreseeable future.

[Reference: Presentation Slide 30]

But we're not just focused on the lineworker role because of the high hiring forecast; we're also focused on this role because of its impact on our customers. Lineworkers are directly responsible for ensuring our customers have power. So when I talk to potential employees or high school students, for example, one of the most compelling messages I share with them is that, if you want to make an impact in your community, if

you want to make an impact on the neighbors in your — on the people in your neighborhood, come work at the power company, and be a lineworker in particular. So not only are these roles critical for the customer experience, they also present fulfilling, life-sustaining opportunities for those employees.

Lineworkers can make, in their first year, about $40,000 per year. And after just five years on the job, they're making about $75,000 per year. When they top out at the top of the hierarchy, which actually is about seven years, they're making $80-$85,000, and that's before any overtime. So these are real life-changing opportunities for a lot of people.

[Reference: Presentation Slide 31]

So we're not the only ones in the industry needing skilled workers. We're not even the only industry in the State needing skilled workers, as you've heard. And so realizing that there's stiff competition for these skilled workers, we formed last August what we call the Carolinas Energy Workforce Consortium. I'm the chair of the consortium, and other member companies include SCANA, the South Carolina Cooperatives, Sumter

Utilities, Pike Electric, and other contractor partners you can see on the slide there who operate in the State. This is a two-state consortium, so you'll see also partners from North Carolina, as well. In addition to these utility partners and our contractors, we're also working closely with the technical and community college systems in those states.

So, understanding that we have a high need for more lineworkers in the industry, the next logical question that you might ask is, where do you get entry-level lineworkers? Well, one of the primary sources for entry-level lineworkers are our technical college training programs, as Rick mentioned. There are currently only three lineworker training programs at the technical colleges in South Carolina, and they're at York Tech, Horry-Georgetown, and at Trident. Those three programs produce about 50 or 60 lineworkers per year, and, again, we need to hire 500 per year, so clearly there's a gap here. Right? So the consortium is, therefore, focused on two main issues related to that: Working on the education side, we're working on expanding existing programs and building new programs. And from a recruiting

standpoint, we're trying to attract more people to the programs, themselves, and attract people to these jobs.

[Reference: Presentation Slide 32]

So what does a typical lineworker program look like? First of all, let me just say that these programs are very capital-intensive to get started. The current estimate is about $500,000 just to get started. That's before you've got your first class. It takes bucket trucks, and it takes equipment for the students, it takes storage for the equipment, it takes tools, it takes land for a pole yard, it takes classroom space. It's very capital-intensive from that perspective. The other primary hurdle that we see with some of these programs and getting them started is that you have to have qualified instructors, usually people from the industry who are retirees. Those are our best candidates for these jobs.

So these aren't really programs that you can start overnight, and it takes all of the utility members coming together to make it happen.

Now, the typical lineworker college training program is about 12 weeks long, as you'll see on the slide there. There's some variation there;

sometimes they'll go up to about 16 weeks. Right now, tuition in South Carolina is about $4500, and that's the York Tech example. Just to show you how fast this is moving in what we're doing with the consortium and what we're doing with the technical college system, since this slide was finalized, the technical college system in South Carolina believes that we can reduce that tuition rate down to about $1000, which is comparable to what we see in North Carolina. That's a huge win for students in South Carolina. It's a huge win for the industry. It's a huge win for the colleges, as well.

The other good news about these lineworker training programs is about — nearly 100 percent of all the graduates have jobs before they finish the programs, so the employment prospects are tremendous.

And I want you to think about this: You can go to high school, graduate high school, and go to one of these technical college programs for 12 weeks, come out of that program making $40,000 a year with no college debt — virtually no college debt. And that's a great story to tell potential candidates.

And for some of our students, that is their path. They go to high school and they go right

into the program, they graduate, and they're making great money. Right? But many other people take a different path. And I want to share a profile of a student I just met a few weeks ago from one of our partner programs. She was a single mom, waiting tables at a local restaurant. And one night, she's scrolling Facebook on her phone and sees an ad for a lineworker training program at a technical college. She applied to the program and was admitted to the program. This program only cost $900; it's a program in North Carolina. She couldn't afford the $900, so she had to receive a scholarship. So she got a scholarship from partner companies. Now, I want to point out here that the ad that she saw on Facebook and the scholarship were both made available because of Duke Energy grants.

So this is — and I share this story because this is the type of situation we see a lot in the programs: adults looking for second careers. Maybe they have a four-year degree already, maybe they're stuck in an income threshold and they're looking for something else. And that was her situation.

So after 12 weeks, she went through the program and now she's working in the industry

making $40,000 a year. It's a great story. And I also share that story because I want to replicate that same exact experience in towns all across South Carolina, and I don't see why we can't do that.

[Reference: Presentation Slide 33]

So how do we get there? Well, the first step, as I mentioned, is to expand the enrollment capacity at some of the existing programs – in particular, the one at York Tech. We see tremendous demand in that part of the State. And, secondly, we need to build programs in the areas of high demand for these workers, and you see on the map there, from the consortium's perspective, these are the areas where we see the highest demand. So, the Upstate, Midlands, and Pee Dee. And, you know, if all goes well – and we expect it to go well – we expect to see results in the next year or two from these programs.

[Reference: Presentation Slide 34]

But it's not enough just to build the programs; you've got to tell people about them, right? So you'll see on this slide an example of some of the marketing material that we put together at Duke Energy that highlights, specifically, the

York Tech program. There's also a link to our lineworker page that we created on the Duke Energy website, and that directs people to employment opportunities, and it directs people to these community and technical college programs in their areas.

[Reference: Presentation Slide 35]

And the last thing I'd like to mention is that we — you know, the second primary source for entry-level lineworker talent is the military. And we really have a dynamic military recruiting team, and I can't say enough about them, and about our company culture that's really veteran-friendly.

At the end of 2017, nearly 50 percent of all of our lineworker hires came from the military. So, you know, between the technical college programs and the military recruiting efforts we have in place, I feel like we're really building a strong pipeline to fill all these skilled-workforce needs in the industry.

So, in conclusion, as you've heard, we, like the rest of the State, are facing challenges with hiring a skilled workforce, not just because of infrastructure modernization but because of the aging workforce and a tighter labor market. I

believe, though, that we, along with our industry partners, are really poised to build off of our strong support of workforce development in the past to ensure we have a skilled workforce that enables us to better serve our customers and better serve the State.

So, again, thank you for your time today, and we welcome any questions.

[Reference: Presentation Slide 36]

CHAIRMAN WHITFIELD: Thank you for – all four of you – for your presentations.

And now we'll entertain questions from Commissioners – unless there's anything else, Ms. Smith?

MS. SMITH: No, sir, Mr. Commissioner.

CHAIRMAN WHITFIELD: Commissioner Randall, I see your light on.

VICE CHAIRMAN RANDALL: Thank you, Mr. Chairman.

Thank you, gentlemen, that's a great presentation. Just a couple of things that I want to ask you about. On your targeted underground, you know, when we talked back in my days at the City of Clinton with PMPA, we looked at a lot of underground stuff. Does it make – one of the

things about underground is it certainly keeps trees from falling on your lines, but they said it's a little more difficult to service. I guess, having – doing it targeted, the way you're doing, probably the economic advantages greatly outweigh – and the getting the system back up and running – probably greatly outweighs any type of trouble that you've got servicing underground lines, right?

MR. BOBBY SIMPSON [DUKE]: That's correct. Yeah. The reliability of underground cable today is significantly better than it used to be, so it's very good reliability. And plus just the techniques for locating failures and repair are much more expeditious than they used to be.

VICE CHAIRMAN RANDALL: Okay. The smart grid and smart meters, you know, in the Upstate we've got – I saw something on the news the other day, somebody's worried about mind control and wanting to have a regular meter put back in. And I know there's a cost because you end up having – people can have a different – an old kind of meter, but you've got to read those meters and that takes extra cost, so there's a cost involved in that, correct?

MR. BOBBY SIMPSON [DUKE]: That's correct.

But we do offer an opt-out for customers that would really rather not.

VICE CHAIRMAN RANDALL: But it does offer them a good chance for the two-way communication that you've got. I think that's a – I know a lot of people will be very interested in trying to make sure that they can keep up with – a lot of folks want to do it daily. I'm one of those who likes to keep up and look at it.

I want to applaud you on your workforce development piece. We've talked about, for years, about the aging workforce. And I just finished up a year on a task force with NARUC on military workforce training and development, so I applaud you for that. We just put out, really, a handbook on using the military as a real base for a lot of the jobs. And I also like – I see the big circle includes a good portion of Laurens County up there where Piedmont Tech is, where I live in Clinton, so they've got a good welding program, I know, right now, at the Piedmont Tech campus in Laurens County and in Greenwood. So I know that they're – I encourage young people, when I'm in the high schools, to look at the utility area, because it's a good place to go to work. Thank y'all. I think

that's – I had something else written down, but I can't find it now, so, thank you for your presentation.

Thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Commissioner Randall.

Commissioner Hamilton.

COMMISSIONER HAMILTON: Thank you, Mr. Chairman.

I, too, with Commissioner Randall, would like to thank you for your presentation. I think it was an awakening for us, and it's some changes for some of us who've been around for a while. I can remember not too long ago when they said if you want underground, you've got paid for it. That's changed a lot from 20 years ago.

Mr. Simpson, what is the cost versus savings of underground going to affect the ratepayer?

MR. BOBBY SIMPSON [DUKE]: Repeat that?

COMMISSIONER HAMILTON: The cost of going underground, as you said, the expanded area that you're going to have underground utilities, what will be the savings and reliability plus cost to the ratepayer? How is this going to work out on expensewise?

MR. BOBBY SIMPSON [DUKE]: Well, the savings are the benefit of reducing outages by 30 percent, so that's a major reduction as far as consumer impact. The cost is part of the Power/Forward program that will be a recovering cost eventually, you know, because we'll have to recover those costs.

COMMISSIONER HAMILTON: Okay. And cyberattacks, this is something that we hear about every day. Has anything been developed on substations to allow more protection from cyberattacks?

MR. BOBBY SIMPSON [DUKE]: Yes, sir. There's been a lot of work done. So there's everything from gunshot detection — I mean, devices, that can detect whether that's happened, all the way to, you know, more intense firewall, password protection, things to keep people from being able to break through and get into critical equipment and operate it when it shouldn't be.

COMMISSIONER HAMILTON: All right. Thank you, sir.

Like Commissioner Randall, I'm trying to find my questions, but, Dr. Von Nessen, perhaps you could give us a little more insight on how we could

improve the problems that you have talked about exist, especially in the underdeveloped parts of South Carolina.

DR. JOSEPH VON NESSEN [USC]: Well, I think that these workforce development programs are the most important and the most reliable way to do that, going forward. It has to be a proactive step, because the only way – at this level of unemployment in the State, the only way to find workers is either to bring them in from outside of South Carolina or to train them in the State. So I think that these long-run efforts toward workforce development are the key to it, and this is something that I think many State organizations are working on already.

The South Carolina Chamber of Commerce, for example, sees this as a pressing issue. And how do we get there, I think the key is linking the business community with the workers through programs like this and through others – Apprenticeship Carolina, ReadySC. Those are examples of ones that have been successful, but I think any effort that directly links the needs of the employers to South Carolina residents, that's going to be our ticket to success, because the

structural unemployment is — that's the main cause of unemployment in 2018.

COMMISSIONER HAMILTON: All right. There's been some discussion over the past on economic development, and the difference between the urban area and the rural area is that you have to move these people or get these jobs from rural to the urban. And this has been a big problem.

DR. JOSEPH VON NESSEN [USC]: Right.

COMMISSIONER HAMILTON: Do you have any answers as to how we could solve this problem? I think this is probably one of the biggest problems in South Carolina, is either getting the industry to where the workforce is or the workforce — because we have a lot, and I'm from the rural area.

DR. JOSEPH VON NESSEN [USC]: Uh-huh?

COMMISSIONER HAMILTON: And I understand that we have qualified people, but we don't have the jobs. And they are trainable. We've proven that with industry by industry, that we can provide workforce. And, of course, I know Mr. Gillespy and I talked, had a lot of conversations with him, and a lot of efforts have been put forth from Duke to the rural areas, and we appreciate that. We hope you continue that, without any doubt. But these

are the things that perplex people in these areas. The education in these areas, and so the emphasis you're putting on that through the community colleges – and I might put a plug in for Marlboro-Chesterfield Tech, would be an excellent place for one of your programs. They're very progressive people. We've got an excellent tech school. We need all the help we can get in those areas, and I think this would be – this is where the people are, and if we could go to them, it would help tremendously.

I've made my plea to the four of you. I appreciate you being here. Thank you, very much.

DR. JOSEPH VON NESSEN [USC]: Thank you.

CHAIRMAN WHITFIELD: Thank you, Commissioner Hamilton.

Commissioner Howard.

COMMISSIONER HOWARD: I, too, enjoyed your presentation. In talking about the grid and new concepts and new things coming on the grid, I didn't hear you mention the impact of electric vehicles on the grid.

MR. BOBBY SIMPSON [DUKE]: The impact on electric vehicles, as far as electrical impacts?

COMMISSIONER HOWARD: Right.

MR. BOBBY SIMPSON [DUKE]: It's —

COMMISSIONER HOWARD: Or is it minimal now, and what are your thoughts on the future of it?

MR. BOBBY SIMPSON [DUKE]: The impact of electric vehicles on the grid right now are not significant. It's really the solar is having the biggest impact on the grid that we need to address. But, in order to enable the growth of electric vehicles, that's one of the reasons we need to make the investment. And, you know, the outlook on electric vehicles, I think it's going to grow, and we support that.

You know, one of the key things about Power/Forward I didn't talk specifically about is the term "non-wires alternatives." You know, there's other ways to address the performance of the grid by leveraging things like solar and microgrids and electric vehicles.

COMMISSIONER HOWARD: Talking about the need for 18,000 lineworkers, how many lineworkers do you have now?

MR. BOBBY SIMPSON [DUKE]: I don't remember the number.

Chris?

MR. CHRIS HAGE [DUKE]: So, in South Carolina,

we've got about 250 Duke Energy employee lineworkers, probably the same number for our contractors in South Carolina. That's our current population.

COMMISSIONER HOWARD: Yet you want 18,000 by, what, 2025? What was that?

MR. CHRIS HAGE [DUKE]: Nationally, they're projecting —

COMMISSIONER HOWARD: Oh, nationally.

MR. CHRIS HAGE [DUKE]: Nationally, 18,000. Yeah, we couldn't handle 18,000, so — yeah, that's the national.

COMMISSIONER HOWARD: I thought, that's why I asked the question.

MR. CHRIS HAGE [DUKE]: Great question. That's a great question.

COMMISSIONER HOWARD: Talking about smart meters or advanced metering, and I'll use the terms interchangeably, what percentage of your Duke customers — Duke Energy customers — are now having — now have smart or advanced metering? And then you mentioned you're moving on to Duke Progress, and what is the percentage now of Duke Progress?

MR. BOBBY SIMPSON [DUKE]: I don't know those exact numbers. I'll just say that the intent is to

complete Duke Energy Carolinas, I believe it's this year, and then Duke Energy Progress would lag that by a couple of years. So in a few years, it'll be in the 90 percent. The only ones that won't have them are those that opt out.

COMMISSIONER HOWARD: That was my next question. You just answered it, so — I was going to ask you the percentage of opt-outs, but you just indicated around 10 percent.

MR. BOBBY SIMPSON [DUKE]: Yeah, and I really don't know the number at this time.

COMMISSIONER HOWARD: Opt-out is not a big thing, is it? I mean, not a lot of people are doing it?

MR. BOBBY SIMPSON [DUKE]: It's not a large — it's less than 10 percent, from my recollection.

COMMISSIONER HOWARD: All right. Now I'm treading on thin ice, because I'm going to ask the doctor some questions — a question. In your chart where length of economic growth, I think it's called — economic expansion by length.

DR. JOSEPH VON NESSEN [USC]: Yes, sir.

COMMISSIONER HOWARD: What dictates the end of one economic line and beginning another? Sometimes it's like four months, five months. What dictates

— what triggers this is the end of this expansion and this begins another expansion? What triggers that end of expansion?

DR. JOSEPH VON NESSEN [USC]: What is the recession? So, that's a — yeah, that's a good question. Obviously, very difficult to answer. Where we are in 2018, I think we can look at economic factors that are red flags or risk factors. And I would say that two of the factors right now that we are looking at, in terms of something that could derail our expansion, number one would be an inappropriate response by the Federal Reserve to the growth that the economy is seeing, particularly with respect to inflation. So this year, because we're beginning to see more wage growth and more upward pressure on inflation, that has triggered the Federal Reserve to state that they're going to raise interest rates at a more aggressive pace. And it's important that that pace that they set is compatible with the growth in the economy, because as interest rates go up, that can put a dampening effect on growth. So if they get too aggressive too quickly, with the goal of keeping inflation in check, that can potentially derail our growth. So that's one factor to keep

our eye on this year. And the other is any significant change in policy. So trade policy is something, right now, that obviously there are discussions at the national level and it can have impacts on South Carolina and the U.S.

So, I'd say those are the two factors to be looking at. I don't think those are major risk factors this year, but I'd say those are the two areas of caution that we need to be on the lookout for, based on where we are right now.

COMMISSIONER HOWARD: Thank you. What do you see as the future of the drones? The drone future — is the future lines, private lines, that kind of stuff? Do you see any future?

MR. BOBBY SIMPSON [DUKE]: I'll — the future of the drones is awesome. We're using them right now to patrol transmission lines, for example. You can use drones to identify any — not only vegetation issues, tree issues, but you can find potential electrical problems. You can catch something before it happens. You can see faulty insulators arcing, those types of things. We'll be using them more and more over time.

COMMISSIONER HOWARD: Well, that segues into my next question, is, with technology, what — do

you see technology having an effect on employment — technological advancement? Just like your drones, you don't have anybody going to check the lines. What is the future of technology versus employment?

MR. BOBBY SIMPSON [DUKE]: In terms of skills, I think it's going to require new skills, and that's part of why we're concerned and trying to be proactive here. So we've got to focus on making sure the skill sets match what the technology demands. And an example is there's smart devices out on power lines now, and so people that used to go do very strict hands-on nuts-and-bolts work, they now have to understand, you know, the computer logic and how things work. So those skills are critical.

COMMISSIONER HOWARD: Thank you, very much. I enjoyed your presentation.

Thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Commissioner Howard.

Commissioner Bockman.

COMMISSIONER BOCKMAN: Thank you, Mr. Chairman.

Good morning, gentlemen. One hardly knows where to begin, with all the information that

you've provided us, so I'll stay away from that thin ice of Commissioner Howard's.

Mr. Simpson, let me ask you, just — perhaps you said this, and maybe I didn't catch it, but in terms of the Power/Forward program, what's the duration that you anticipate? Is this a 10-year program, a five-year program?

MR. BOBBY SIMPSON [DUKE]: Yes, sir, it's a 10-year program. It actually began last year, in 2017, so it would run 10 years, through 2026.

COMMISSIONER BOCKMAN: What's the projected cost of this program?

MR. BOBBY SIMPSON [DUKE]: Projected cost in South Carolina is around $3 billion over that 10-year period.

COMMISSIONER BOCKMAN: And how does that compare with the cost for North Carolina?

MR. BOBBY SIMPSON [DUKE]: North Carolina, it's $13 billion.

COMMISSIONER BOCKMAN: Commissioner Howard was asking you about drones, and what about the impact of robotics and artificial intelligence in terms of this program? Have you factored that in, in terms of maybe the workforce that's necessary? Not necessarily the preparation, but in terms of the

overall need for employees?

MR. BOBBY SIMPSON [DUKE]: I'm not aware of that.

Chris, I don't – perhaps you could speak to that?

MR. CHRIS HAGE [DUKE]: Yeah, I'll just – not – you know, no significant real change in sort of the immediate skill requirement, I would say. But I think the big change – maybe going back to the other question – the big change that we're seeing in some of these technical college programs, for example, from a training perspective, is really on the undergrounding side. So not necessarily on the, you know, computers and that type of thing, but really on – you know, for years, these programs have always been overhead programs, and now more and more these programs are adding the underground piece to it. So that's the big change we're seeing and the shift for these workers right now.

DR. JOSEPH VON NESSEN [USC]: I would add just one point to that, since we talked about the role of technology, is that that's one of the reasons why Power/Forward is an example of an initiative that is going to boost the average wage in South Carolina, which right now hovers right around

$40,000. So when we look long-run at the benefits of technology, wage growth is central to that benefit.

COMMISSIONER BOCKMAN: What's your anticipation, Dr. Von Nessen, in terms of wage growth in South Carolina?

DR. JOSEPH VON NESSEN [USC]: Well, so far in this expansion, we've been roughly paralleling that of the national average. We have recently seen some evidence that we might begin to outpace the national average, because we've had such a strong growth in advanced manufacturing, across the board, and the demand for STEM-related fields that's been driven across industries but especially in advanced manufacturing. So we're cautiously optimistic that wage growth is going to continue to rise at a rate at or higher than the national average, which is good news for workers in the State, to be sure.

COMMISSIONER BOCKMAN: For what period of time would you anticipate that we would be higher than the national average?

DR. JOSEPH VON NESSEN [USC]: It's difficult to project out too far, because the market environment is so dynamic, but I would say certainly for roughly the next 12 months. Looking

out as far as we reasonably can at this point, we're anticipating that wage growth will still be positive and, again, above the national average.

COMMISSIONER BOCKMAN: Dr. Von Nessen, your charts with respect to economic expansion indicate we've been in a period since 2009, at least, of some pretty dramatic growth and expansion in this country. You've got a chart, and your unemployment rate – certainly since the beginning of the recession in 2008, unemployment rates have gone down dramatically, job-opening rates have gone up. What happens if there was a downturn in the economy? And, in particular, in terms of the effect, perhaps, on this program or in terms of the need for additional workers, what happens if we experience a downturn?

DR. JOSEPH VON NESSEN [USC]: Well, I think if we look at the – well, for the need for Power/Forward, I think that's fairly fixed in terms of the workforce that it's going to require.

COMMISSIONER BOCKMAN: Independent of larger economic factors?

DR. JOSEPH VON NESSEN [USC]: Well, I can't speak to the – and maybe, Mr. Simpson, that would be a question for you, in terms of how the demand

is impacting the growth in demand for energy, and what Duke Energy is seeing, but – speaking to that point.

But I think more generally, if we look at the impact of Power/Forward, that's fairly – if it is executed as it is planned, that impact is fairly fixed. The variable there is are we talking, you know – is the current plan of 10 years versus – has it changed to 11 years, or adjusted to nine years, whatever that timeframe is? So the annual estimates could vary, but the program itself, as it is structured, would have a fairly stable impact; it's just the timeframe would be different.

COMMISSIONER BOCKMAN: Dr. Von Nessen, you mentioned a statistic, and I'm not sure I caught it. But in terms of applicants for job positions, our experience has been that only 4 percent of applicants are qualified for the position for which they apply? I'm not sure what –

DR. JOSEPH VON NESSEN [USC]: Sure. So that came from an article that referenced the Volvo announcement and their efforts to ramp up their hiring. And the context is that they are struggling to find workers that they need, as well. And I bring that up just because that – this – to

serve as an example of the fact that this is a reality not just for Duke Energy but for all companies, including ones that are looking to locate here that aren't here yet.

COMMISSIONER BOCKMAN: So that was just at Volvo. Is that –

DR. JOSEPH VON NESSEN [USC]: Correct, yes. Right.

COMMISSIONER BOCKMAN: But would other industries, other companies – either those that are here or are looking to locate here – would they experience the same deficiency in terms of the preparation of applicants? Would you expect that?

DR. JOSEPH VON NESSEN [USC]: Yes. And that occurs on a technical side and a soft-skill side. It depends on the industry, of course. It's going to be different. But what we have seen is that, again, on the technical side and on the soft-skill side, in both cases, this is something that companies are facing. So, for example, on the soft-skill side, we see companies telling us that employees that are – they can't pass a drug test, for example. That's a real problem. But other soft skills, too, so showing up for work on time, abiding by a dress code, those types of things. So

it's really across the board. It's hard to be too specific because it does vary by industry.

COMMISSIONER BOCKMAN: Does that affect or impact this program that Duke has put together to attract additional workers? I mean, are you finding that – or, would you find that same experience, that such a small percentage is prepared, or adequately prepared, in terms of preparation to meet your needs?

MR. CHRIS HAGE [DUKE]: So that's one of the reasons why these technical college programs are so important, because there is a deficiency currently in the labor market for lineworkers, in particular. So we have to increase the capacity of the current programs, because to really be productive, a lineworker needs to be, basically, in year two of their employment. So these lineworker programs that we're building in the State at these technical colleges will advance that – advance their skills, basically, one year, by going through the training programs.

COMMISSIONER BOCKMAN: Mr. Hage, would the tech schools be experiencing that same deficiency in terms of preparation for their programs, in terms of their student's abilities to learn these

technical skills?

MR. CHRIS HAGE [DUKE]: So, I think the way I understand the question is – or let me just answer this. You can go into these programs with no skills, and they will be trained from the ground up. Now you have to have a mechanical aptitude, you've got to be willing to work outside, you've got to be able to pass a drug test, you've got to have basic math skills – ninth grade level math – so those components have to be in place from the outset. And we do see challenges with some people entering these programs, from that perspective.

COMMISSIONER BOCKMAN: I think Commissioner Hamilton put in a good word for developing your participation in tech schools in his district, and I certainly would support that. But you indicate there are other areas in South Carolina in which there's a need for tech schools to participate in these programs and maybe your consortium is doing that. How do you go about – how would you go about encouraging tech schools in other parts of South Carolina to participate in this program?

MR. CHRIS HAGE [DUKE]: Yeah, so, I don't want to disappoint anybody, but – so we're working with the consortium and the technical college system

directly to identify the focus schools. And right now we're targeting three potential new programs, okay? We're thinking we can support that. So it's not at every community college or every technical college in the State; it's really at three.

And so we're looking at the Upstate of South Carolina, at Greenville Tech probably, because it's right in the middle of where the demand is; it's easy to get to Greenville Tech. We have great partnerships with the co-ops and Greenville Tech, and great partnerships with Duke and Greenville Tech, so that's a prime target for a new program. Midlands Tech is another great opportunity for a program. SCANA has a great relationship there, the co-ops have a great relationship there. And then the third one would be Florence-Darlington Tech in the Pee Dee. Again, it's sort of centrally located in the Pee Dee and, you know, great relationship already with Sumter Utilities and with Duke Energy at Florence-Darlington — as Rick mentioned earlier, about the nuclear welding program we have there. So those are really the three that we're focused on. We think we need to start there and then we'll see how much more we need to expand after that, if we need to expand.

COMMISSIONER BOCKMAN: And I just have maybe one other question. You focused on linemen; I think there was some mention about welders. What other skills or trades would be needed or that Duke might need, to further the program?

MR. CHRIS HAGE [DUKE]: So, the big skill needs are really lineworkers, degreed engineers, and non-degreed engineers. Those are the big three. So we're working on pipelines for all of those. Engineering and the engineering technology type skills are highly competitive, so we have very targeted recruiting strategies for those folks.

COMMISSIONER BOCKMAN: Mr. Chairman, that's all I have, except I want to apologize. I asked Mr. Hage a question and I used the word, the term, "linemen." And I don't think that's — I think "lineworkers" would be a more appropriate term now. I would prefer to use that term, myself, and I apologize for that. Thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Commissioner Bockman.

Commissioner Fleming.

COMMISSIONER FLEMING: Yes, thank you for the presentations today. This is all very interesting and forward-looking for our State, and I think it

will be a great benefit to all of us. I'm sure the challenge will be when it comes before the Commission for the $3 billion, but that can be worked through, too, I'm sure, as well, with the benefits that are coming about.

I wanted to ask about — well, there were a couple of areas, and I'm not sure this is the right forum for this, but we've had a lot of — we've had some ex partes with renewable energy, which you've talked about the Power/Forward is really very necessary for adapting to that in a productive way. But there have been a lot of challenges to the interconnection and at — presently and all. Is this going to address that particular issue that the renewables are facing?

MR. BOBBY SIMPSON [DUKE]: Let me try and address that question this way. So our approach with renewables and the interconnections, I mean, just my own personal experience with that work is that we've always really tried hard to accommodate renewables and getting more on the grid. And we have a lot of megawatts of renewables on the grid now. The challenges we've had is just with doing the engineering right, so that you don't compromise customer reliability with policy changes, because

policy changes create changes in terms of how you do studies and how you interact with the solar developers. But the simple answer is, you know, Power/Forward is going to ready the grid so that it is, I call it a welcome mat. You know, so the grid has been able to accommodate renewables in the past, but we're reaching the threshold where it's becoming really problematic, and we want to keep it a welcome mat. As far as the studies that generate decisions about what we can do, I mean, those tend to be more policy issues than grid-performance issues. I'm not sure if that answered your question.

COMMISSIONER FLEMING: Okay, well, the policies at Duke or the policies with the State?

MR. BOBBY SIMPSON [DUKE]: It's not internal. It's really –

COMMISSIONER FLEMING: It's –

MR. BOBBY SIMPSON [DUKE]: – public policy, if you will.

COMMISSIONER FLEMING: – public policy.

MR. BOBBY SIMPSON [DUKE]: Right.

COMMISSIONER FLEMING: Okay.

MR. BOBBY SIMPSON [DUKE]: Which we have been very active to – because we want to help do the

things that make it easy.

COMMISSIONER FLEMING: Okay.

MR. BOBBY SIMPSON [DUKE]: That's where we're coming from.

COMMISSIONER FLEMING: All right. So you're working with the renewables –

MR. BOBBY SIMPSON [DUKE]: Yes.

COMMISSIONER FLEMING: – addressing those issues?

MR. BOBBY SIMPSON [DUKE]: We are, absolutely. I mean, we have people that are actively engaged with the policymakers.

COMMISSIONER FLEMING: Okay. Well, there are issues, though, of being even certified to be able to – well, we just won't – this doesn't seem to be the right forum for those questions. So, but the Power/Forward is really setting the stage for really getting us ready for this next generation, I guess, of integrating the power two-way, having the customer actively involved in what is happening.

MR. BOBBY SIMPSON [DUKE]: Most definitely. A key part of it.

COMMISSIONER FLEMING: And I wanted to ask about the – going back – I really applaud all the efforts that are happening. The technical colleges

have been outstanding for decades in having the workforce ready for the jobs that are needed in South Carolina, and it looks like they're gearing up for what's needed for this next level of skills. What type of skills now are needed for, like, the lineworkers and all, now that data is playing such an important part? I'm sure that's really changing some of the skills and aptitudes needed.

MR. CHRIS HAGE [DUKE]: So I would say that most of these programs haven't really – we're not seeing sort of an infiltration yet on the data side of it. Most of this is construction related, you know, skill-based lineworker skills like climbing, setting poles, that type of thing. It's a very traditional type of skill right now.

COMMISSIONER FLEMING: Oh, okay. So, and even with that, you're having challenges filling them?

MR. CHRIS HAGE [DUKE]: So, we're having challenges from a skill standpoint and finding people who are ready to hit the ground running, working. We can – there are lots of people who are interested in this, but they don't bring the skills necessarily to start. So we have to get them in the programs to advance the skills, to get them ready faster.

COMMISSIONER FLEMING: Okay. And are you working with the high schools or the school system, public school system, to work to prepare them for that type of entry into the workforce?

MR. CHRIS HAGE [DUKE]: We will be. So, in the consortium, each member of the consortium has a designated high school that is a feeder school into the technical college program. And so we've all sort of divvied those up among utility partners. In addition to that, we're talking to the technical college system about the very specific curriculum programs that are implemented at the colleges. And we want to make sure that the programs that are available in high school can feed directly into that curriculum.

Currently, there's a – the curriculum that we're looking at is NCCER, a national construction/trades type curriculum. It's already taught in South Carolina public schools in some areas, and so it would be an easy transition if we implement that at the technical colleges, to have the transition from high school into the technical college.

COMMISSIONER FLEMING: Okay. And I know that there's a lot of emphasis put on students once

they've entered school, trying to get them ready or, if they're having challenges, working with them. But what are you doing – because, from everything I've read and understand, it's the first three years of that child that gets them so that they're ready for school, that really determines their success in school. And it seems like, in addition to what you're working on, is there work being done for the first three years? I know there's a program that's being initiated in Spartanburg that will just – they are saying – I've forgotten the name of it, but if a nurse visits the home three times a year in the first three years, that the percentage of children that will be successful finishing school greatly increases. The percentage was just – I don't remember it exactly, but it was a huge percentage. So is there any thought to – I know you're working in a specific area, but are you working with other people that are trying to address children at a very young age, so that – I know it will be two decades before you'll see the results of it, which doesn't help your problem right now, but it certainly would help South Carolina, I think.

MR. RICK JIRAN [DUKE]: Commissioner Fleming,

you bring up a very, very good point, and that's we need to be thinking in terms of a cradle-to-career mentality. This isn't about capturing a student in middle school or capturing them in high school. There has to be a different mindset. And this isn't a Duke Energy issue; this is a public-private issue, and we all need to get together. I think our Foundation has done some outstanding things with reading literacy, early learning childhood type things. But to your point, it needs to go even further back than that. And I have no doubt those are conversations that we will be having with our nonprofit partners, with our Foundation, and with other industry partners in the future.

COMMISSIONER FLEMING: I think it would be very exciting. I know I worked with United Way, with that – with the reading program or the books program that was established by Dolly Parton.

MR. RICK JIRAN [DUKE]: With Dolly Parton?

COMMISSIONER FLEMING: Yeah.

MR. RICK JIRAN [DUKE]: Yeah, we're a huge supporter.

COMMISSIONER FLEMING: That was in the '90s, and just because it makes such a difference to be ready for school by age five.

MR. RICK JIRAN [DUKE]: It does.

COMMISSIONER FLEMING: Well, I think it's encouraging to hear that not only is it needed now but we're looking – that you're thinking about the future, as far as that goes, too. So what's going to happen if you've got these jobs and you don't have skilled people, though, right now? I know you're trying to work on it, but I would ask the professor, what's going to happen? Is there big recruitment to bring people in to fill those jobs?

DR. JOSEPH VON NESSEN [USC]: Well, I think it's an all-of-the-above approach. I mean, if you're asking about the question for Power/Forward, you know, maybe one of the other panelists can speak to the limitations of what that would cause, if these workers can't be found and trained. But I think, regardless, the need is clear for these workforce efforts, because as we were just talking about, this is a long-run issue that we have to be addressing, and it starts in the school system, starts with K-12. But looking ahead, I think if we look at the economic development/recruitment efforts, that's where we could potentially see the ramifications first, because we do – South Carolina does have a good reputation for working with

companies, helping them to identify – as the State – identifying needs that the companies have, and then working with them through the technical college system, through these other initiatives, to help train workers so that the employers can locate here and have access to a good workforce. So it's important to maintain that positive reputation that the State has created, and continue to build on the programs that – Apprenticeship Carolina and ReadySC, I come back to those two, because those two are nationally recognized. Again, more generally looking at how we build on the successes that we've had.

COMMISSIONER FLEMING: Thank you. Thank you all. It's very exciting, and I look forward to the future.

CHAIRMAN WHITFIELD: Thank you, Commissioner Fleming.

I've got a couple for you, myself, and we'll round this out. First, I guess, Mr. Hage, you had answered a question from Commissioner Howard about there being, I think, 250 lineworkers in South Carolina. Is that both Duke Energy Carolinas and Duke Energy Progress, or –

MR. CHRIS HAGE [DUKE]: So, that's combined.

CHAIRMAN WHITFIELD: That's combined.

MR. CHRIS HAGE [DUKE]: Right. And that's Duke Energy direct employees. We also have contractors on top of that.

CHAIRMAN WHITFIELD: But that's direct Duke Energy employees, but both territories.

MR. CHRIS HAGE [DUKE]: That's right.

CHAIRMAN WHITFIELD: One of your slides, I think you had where South Carolina utilities – and I'm trying to get to it – would increase by 2500 lineworkers by 2023? Is that correct?

MR. CHRIS HAGE [DUKE]: That's right.

CHAIRMAN WHITFIELD: Now that's all utilities. That's municipals, co-ops, that's everybody.

MR. CHRIS HAGE [DUKE]: So that's a great question. It includes the people in the consortium. So, the people you see on the slide there for the consortium, that's all of our contractor partners, that's Duke Energy, that's SCANA. That does not include Santee Cooper and it does not include the cities.

CHAIRMAN WHITFIELD: Does not the cities or Santee Cooper, but –

MR. CHRIS HAGE [DUKE]: That's right.

CHAIRMAN WHITFIELD: – the co-ops and it does

include your contractors.

MR. CHRIS HAGE [DUKE]: Correct.

CHAIRMAN WHITFIELD: Your outside vendors.

MR. CHRIS HAGE [DUKE]: That's right.

CHAIRMAN WHITFIELD: Okay. Next, kind of moving along those lines talking about the lineworkers, and there was a little bit of discussion on this. Mr. Simpson, you were talking about going to the two-way grid, and one thing we were talking – I think you had addressed a question from Commissioner Fleming about most of these workers being – having a construction and that type background, but one thing I guess that could be said as you move forward with the hiring of these new lineworkers in the next six to eight to ten – well, 2023, and then beyond, those workers that do come on, while they may have the construction and that type skill set, craft labor skill set, they certainly, when they come on, they're going to be trained in the new two-way smart grid, and you've cited the example about the two smart meters talking to each other about a car accident and isolating it to that one area. In other words, these new workers going forward will not be – will not come into it from the old mindset, as you

describe. Is that fair to say, Mr. Simpson?

MR. BOBBY SIMPSON [DUKE]: Absolutely. They have to come in with skills that some of the existing employees don't have.

MR. CHRIS HAGE [DUKE]: That's right. Yeah, and I will say, too, that – so, we have – all of the utilities in South Carolina have an apprenticeship program. So, as these new hires come in, they may come in at the basic, you know, construction level, right? But they advance in four or five years to increase their skill set, including on the technology side.

CHAIRMAN WHITFIELD: Let's talk about cost just a minute. I think it was in yours, Mr. Simpson – and I don't want to – all of you had great presentations. I don't want to pit anybody against anybody, but I'm a little bit confused about two of your numbers here. Mr. Simpson, you had almost $200 million in new wages and salaries, I think, at the peak, 3300 new jobs needed in South Carolina with Power/Forward. I believe it was your slide page six. But then Dr. Von Nessen had a different figure; he had $315 million. Or is one figure at peak and the other not? Or am I just not following?

MR. BOBBY SIMPSON [DUKE]: Let me – I can clarify what I said.

CHAIRMAN WHITFIELD: Okay.

MR. BOBBY SIMPSON [DUKE]: The jobs were 3300 new jobs. That's an average, so 3300 is average, and 5400 is the number at the project's peak year.

CHAIRMAN WHITFIELD: Right.

MR. BOBBY SIMPSON [DUKE]: Then on the dollars, the $200 million is new salaries and wages, on average, during each year, and the 315 was the peak construction year. The difference is average versus peak.

CHAIRMAN WHITFIELD: Okay. So 315 would be during the peak, is that – in Dr. Von Nessen's slides; is that correct?

DR. JOSEPH VON NESSEN [USC]: That's correct. And I think also we mentioned the 5400 jobs at the peak. So the 5400 jobs would corresponded to the $315 million, as opposed to the 3300 average.

CHAIRMAN WHITFIELD: I see. I totally follow you. You just didn't – the 54 – the 315 goes with the 54, and the 33 goes with the 200.

DR. JOSEPH VON NESSEN [USC]: Exactly.

MR. BOBBY SIMPSON [DUKE]: [Nodding head.]

CHAIRMAN WHITFIELD: Next, Dr. Von Nessen, you

had some slides that – I'm going to get to your first one. And I totally followed you on the first one, I think it was 13, where you talked about the big bounce or shift, if you will, along about 2015, because of the low unemployment and the demand for workers, and your graph shows how the average wage went up about that time, about 2015? Explain to me, though – and I guess I just didn't grasp it at the time you were talking. On 16, you have this sharp decline at 2015. What is that?

DR. JOSEPH VON NESSEN [USC]: So that represents – so slide 16 represents employment growth for the State as a whole. So those are annual averages, and the point of that slide was to show that we've seen – employment growth at its peak was at 3 percent and it's come down to 1.5 percent over the last several years, in part, because even though there is strong demand, that employers are struggling more and more to find the workers that they need, and that's having a direct effect by slowing employment growth.

CHAIRMAN WHITFIELD: So the 1.5 percent, when I see that down there, it's not a decline; it's the fact that it's come from 3 percent down to 1.5.

DR. JOSEPH VON NESSEN [USC]: That's correct,

yes.

CHAIRMAN WHITFIELD: Okay.

DR. JOSEPH VON NESSEN [USC]: So our employment growth has been steady and positive, with some variations of course, and that being the most recent change in the trend.

CHAIRMAN WHITFIELD: I see. I see. Let's talk about cost just for a minute. And I don't want to – I mean, I know you've got some total costs in here, Mr. Simpson, but I want to talk about one or two specific things, if we can. You had some discussion with Commissioners Hamilton and Howard about – or certainly Hamilton, I think – about underground lines, and your conversation with him was that would eliminate 30 percent of all outages. And you would go into some of the more vulnerable areas, I guess, and do that. You talked about that, and you also talked about moving low-lying substations. Do you have any cost figures for both the putting these lines underground that would insure up to 30 percent reduction in outages, and costs for moving the low-lying substations?

MR. BOBBY SIMPSON [DUKE]: The targeted undergrounding costs, I don't have dollars figures with me right now, but it's roughly 35 to 40

percent of the cost of Power/Forward overall, and I don't have the exact number on the substation flood-prone areas. But we do have all of these costs in very granular detail in, we call it a white paper, a technical overview of Power/Forward.

CHAIRMAN WHITFIELD: So it's roughly — but it's roughly 30 percent —

MR. BOBBY SIMPSON [DUKE]: Thirty-five to forty percent of the total cost of Power/Forward is targeted undergrounding, roughly.

CHAIRMAN WHITFIELD: And I guess, overall numbers, back to these overall numbers that you cited, in terms of investment in the State and job creation, all that sort of thing, that is throughout everything involved — that would be throughout everything involved with Power/Forward, including capital investment — not only that, but with the subcontractors, outside vendors, internally within DEC and DEP, everything. Is that — are those numbers — that's for everything, comprehensive. Is that right?

MR. BOBBY SIMPSON [DUKE]: Right.

DR. JOSEPH VON NESSEN [USC]: That's correct, yes.

CHAIRMAN WHITFIELD: And, lastly, I would just

offer a comment and, certainly, a compliment. I certainly appreciate all four of you bringing us this information. This is the only way we can hear these type things, through this format. And I would also say, as Commissioner Hamilton did, Dr. Von Nessen, when you look at some of your numbers I guess on page 17, I am from one of those counties that is still in the dark blue with the higher unemployment numbers. While things have gotten some better, I'm still in one of those rural areas that still takes a long time to catch up. So we certainly appreciate you looking at economic development in all of South Carolina.

And with that, I will thank you. I don't see a further question – Commissioner Fleming.

COMMISSIONER FLEMING: Yes, Mr. Chairman. Could we ask them to provide us with that white paper on the grid, Carolina/Forward, if they could?

MS. SMITH: We would be happy to provide that in the materials following this ex parte.

CHAIRMAN WHITFIELD: Mr. Bateman?

MR. BATEMAN: Commissioner Fleming, as Ms. Shirley Smith just echoed, in the certification, we'll have a link to that white paper, as well.

COMMISSIONER FLEMING: Okay. Great. Thank

you.

CHAIRMAN WHITFIELD: Thank you, Mr. Bateman, Ms. Smith. Thank you.

So you will get your white paper.

And we appreciate that, and we certainly appreciate all four of you. And with that, this allowable ex parte – we are adjourned.

[WHEREUPON, at 12:15 p.m., the proceedings in the above-entitled matter were adjourned.]

C E R T I F I C A T E

I, Jo Elizabeth M. Wheat, CVR-CM-GNSC, do hereby certify that the foregoing is, to the best of my skill and ability, a true and correct transcript of all the proceedings had in an Allowable Ex Parte Proceeding held before THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA in Columbia, South Carolina, according to my verbatim record of same.

IN WITNESS WHEREOF, I have hereunto set my hand, on this the 3rd day of May, 2018.

Jo Elizabeth M. Wheat, CVR-CM/M-GNSC
Hearings Reporter, PSC/SC
My Commission Expires: January 27, 2021.